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Other, description:

US. 6,228,994 B1

Doc Code: Artifact

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⑦

98127-US

The United States of America



The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extensions.

Nicholas P. Godici

Acting Director of the United States Patent and Trademark Office

Marcia L. Campbell-Jones

Attest



US06228994B1

(12) **United States Patent**
Yanagawa et al.

(10) Patent No.: **US 6,228,994 B1**
(45) Date of Patent: **May 8, 2001**

(54) **LABELED PROTEIN AND ITS PRODUCING METHOD, LABELING COMPOUND TO BE USED IN THE METHOD, AND METHOD FOR ANALYZING FUNCTION OF GENES**

(75) Inventors: **Hiroshi Yanagawa; Naoto Nemoto,**
both of Machida; **Etsuko Miyamoto,**
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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/190,276**

(22) Filed: **Nov. 13, 1998**

(30) **Foreign Application Priority Data**

May 15, 1998 (JP) 10-133170

(51) Int. Cl.⁷ **C07K 1/13; C07H 19/04;**
C07H 19/20

(52) U.S. Cl. **530/402; 530/350; 530/300;**
536/26.3; 536/26.6

(58) Field of Search **530/402, 350,**
530/300; 536/26.3, 26.6

(56) **References Cited**

FOREIGN PATENT DOCUMENTS

0 962 527 12/1999 (EP).
98/16636 * 4/1998 (WO).

OTHER PUBLICATIONS

Progress in Biophysics and Molecular Biology, XIIth International Biophysics Congress, abstract No. p-A5-04 (Aug. 1996).

Promega Technical Bulletin, No. 182 (Sep. 1993).

N. Nemoto et al., *FEBS Letters*, 414, 405-408 (1997).

"Program and Proceedings of the 20th Annual Meeting of the Molecular Biology Society of Japan", Nov. 15, 1997, pp. 121, 546 and 547, together with a summarized translation.

* cited by examiner

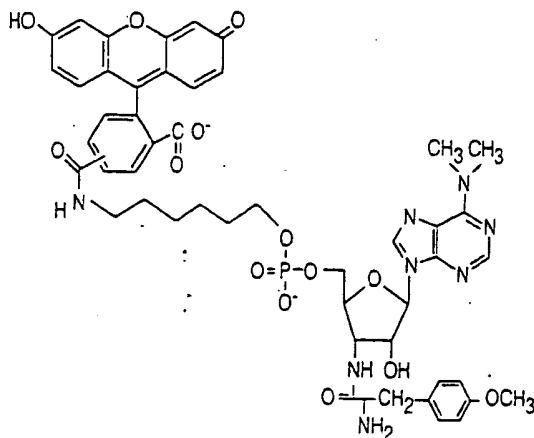
Primary Examiner—Rebecca E. Prouty

(74) Attorney, Agent, or Firm—Wenderoth, Lind & Ponack, L.L.P.

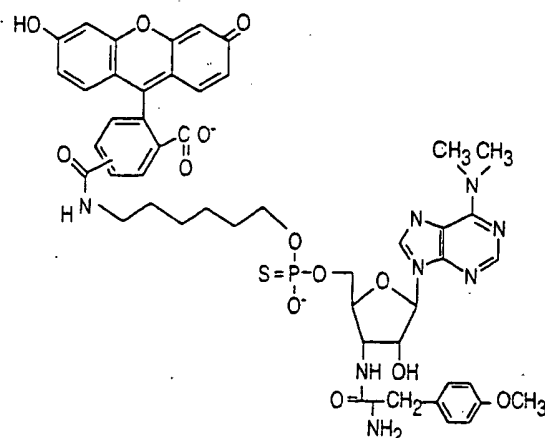
(57) **ABSTRACT**

A protein having a labeling compound attached to its C-terminal, in which the compound comprises a label portion comprising a label substance and an acceptor portion comprising a compound having an ability of binding to a C-terminal of a synthesized protein when protein synthesis is carried out in a cell-free protein synthesis system or in a living cell is provided. Also, a method for producing the protein comprising the step of performing synthesis of a protein in a cell-free protein synthesis system or in a living cell in the presence of a labeling compound comprising a label portion comprising a label substance and an acceptor portion comprising a compound having an ability of binding to a C-terminal of a synthesized protein when protein synthesis is carried out in the cell-free protein synthesis system or in the living cell, the labeling compound being present at a concentration effective for the labeling compound to bind to the C-terminal of the synthesized protein is provided. Also, the labeling compound and a method for analyzing a function of a gene are further provided.

8 Claims, 4 Drawing Sheets



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